



# CALIFORNIA HYDROGEN HIGHWAY NETWORK



## General CaH2Net Fact Sheet

The mission of the California Hydrogen Highway Network is to assure that infrastructure is in place to enable fuel cells and other hydrogen vehicle technologies to be used by consumers as they reach commercial readiness. Working in partnership with other components of the State's environmental and energy programs, the CaH2Net can help achieve more stable and sustainable energy usage, and increase the number of zero emission vehicles (ZEVs) on California's roads.

### **Background**

California has long been a leader in the development of advanced zero and near-zero emission vehicle technologies, including those fueled by hydrogen. To continue this leadership and pursue a variety of important benefits for all Californians, Governor Arnold Schwarzenegger directed the California Environmental Protection Agency (Cal/EPA) in April 2004, to develop a "Blueprint Plan" that will expedite availability of hydrogen fueling stations and products that use hydrogen. The Blueprint Plan was developed through a collaborative process with input from more than 200 stakeholders from energy, auto and technology companies, environmental organizations and local, State and federal government agencies. The Blueprint Plan was presented to the Governor in May 2005.

### **Actions**

Chapter 91, statutes of 2005 (Senate Bill 76) allocated \$6.5 million in funding for state-sponsored hydrogen demonstration projects. This funding will help co-fund 3 new hydrogen stations that meet the Blueprint Plan's environmental targets. The funding will also allow the State to procure hydrogen-powered vehicles and shuttle buses. Each year, continued funding and efforts will help to increase the number of hydrogen vehicles and stations even more – spurring advancement of hydrogen technology and providing an eventual significant expansion and "linkage" of hydrogen stations so Californians may travel freely through the state in a hydrogen vehicle. California's vision as stated in the Blueprint Plan is to have at least 50 hydrogen stations in the state by 2010.

### **Benefits**

California is pursuing the advancement of hydrogen because it addresses several of the State's high-priority challenges, including environmental protection, energy security and diversity, and economic development. Since hydrogen can be produced from a vast spectrum of sources, including clean renewable sources such as water, wind, sun and biomass, it enables diversification of our energy supply, especially in the transportation sector, which is almost entirely dependent on petroleum fuels.

Hydrogen used in fuel cell vehicles results in zero vehicle emissions, and can provide near-zero emissions when used in an internal combustion engine (ICE) vehicle. When hydrogen is produced from renewable resources and used to power FCVs, the entire chain of processes (fuel production through end use in a vehicle) results in extremely low environmental impact. Even when FCVs are powered by hydrogen produced from natural gas, which is

currently the most common method, the entire process chain still results in a 50% reduction in greenhouse gases and a 40-90% reduction in smog forming and toxic emissions compared to today's average fleet gasoline-powered vehicles<sup>1</sup>.

### **Role**

California's vision for hydrogen is part of a larger objective to address air quality, climate change and energy security concerns in our State. The CaH2Net plays an important role in California's plan to meet State and Federal health based air quality standards by providing a network of publicly accessible hydrogen infrastructure in California to support the growing number of zero-emission hydrogen vehicles, and ensuring a steady progression of hydrogen production from clean, sustainable resources.

### **Conclusion**

Actions are being taken to bridge the gap between the current dominance of gasoline and the introduction of sustainable transportation fuels. The CaH2Net is one program among others that will help get us there.

### **For More Information**

If you would like to learn more about the California Hydrogen Highway Network, please visit [www.HydrogenHighway.ca.gov](http://www.HydrogenHighway.ca.gov).

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<sup>1</sup>M. Wang, Y. Wu, and A. Elgowainy, 2005, *Greenhouse Gases, Regulated Emissions, and Energy use in Transportation (GREET) 1.7*, Center for Transportation Research, Argon National Laboratory. Model simulation comparing 2005 model year light duty vehicles to FCVs.